UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF CALIFORNIA

HOOPA VALLEY TRIBE,

Plaintiff,

v.

UNITED STATES BUREAU OF RECLAMATION; DEBRA ANNE HAALAND, in his official capacity as Secretary of the Interior; MARIA CAMILLE CALIMLIM TOUTON, in her official capacity as Commissioner of the United States Bureau of Reclamation; ERNEST A. CONANT, in his official capacity as U.S. Bureau of Reclamation California-Great Basin Regional Director; and UNITED STATES DEPARTMENT OF THE INTERIOR

Defendants.

Case No. 1:20-cv-01814-JLT-EPG

DECLARATION

I, Michael Dixon, declare as follows:

1. I am currently the Executive Director of the Trinity River Restoration Program ("Restoration Program"), where I lead a partnership of six agencies and two tribes in efforts to restore the anadromous fisheries of the Trinity River. I have held that position since March of 2019. Previously I served as the Restoration Program's Implementation Branch Chief where I oversaw the design, permitting, and construction of restoration projects throughout the Trinity River watershed. In prior positions, I served as a refuge planner and wildlife biologist with the U.S. Fish & Wildlife Service, where I provided landscape conservation planning expertise to the national wildlife refuges of the Rocky Mountains and Great Plains; as well as a refuge manager at the Arapaho National Wildlife Refuge, where I became intimately involved in streamflow, fisheries, and riparian habitat restoration efforts. I am also a Commander (select) in the U.S. Coast Guard Reserve; much of my 20 years of active and reserve service has been in the Marine Environmental Protection & Response fields.

2. My primary areas of expertise are in natural resource policy and restoration ecology. I have a Ph.D. in Conservation Biology from the University of Minnesota, Twin Cities; a M.S. in Biology with a minor in Applied and Computational Mathematics from the University of Minnesota, Duluth; and a B.S. in Ecology and Systematic Biology with an

emphasis in Wildlife Biology from California Polytechnic State University, San Luis Obispo.

3. In addition to working as the Executive Director of the Restoration Program, I also reside on a tributary stream of the Trinity River with my family and recreate on the river. I feel a profound sense of personal responsibility for the future of the Trinity River and its wildlife.

4. I am writing this declaration to ensure that the record reflects that the Trinity River Winter Flow Project represents an adaptive management proposal based on more recent studies designed to improve natural river conditions and survival rates for juvenile salmonids in the Trinity River; was the work of a coalition of natural resource trustees who worked to ensure the same; and to underscore the urgent need to allow for better Trinity River flow management based on the best available science to meet tribal trust obligations and put anadromous fish populations on a trajectory toward recovery.

5. The Restoration Program was mandated by the 2000 Trinity River Mainstem Fishery Restoration Record of Decision ("2000 ROD") to incorporate an adaptive management approach to implementing its restoration tools. Per the 2000 ROD, the adaptive management approach is designed to "ensure the proper implementation of the [ROD's] measures, conduct appropriate scientific monitoring and evaluation efforts, and *recommend possible adjustments to the annual flow schedule within the designated flow volumes provided for in this ROD* or other measures in order to ensure that the restoration and maintenance of the Trinity River anadromous fishery continues based on the best available scientific information and analysis." [my emphasis]

6. Because of the adaptive management approach, the Restoration Program has a robust science and monitoring program that informs our decision making. Based in part upon the primary literature and in part on preliminary findings from several monitoring projects, in 2016 the program began to investigate potential changes to flow management that could improve juvenile salmon growth and survival. The 2000 ROD was very specific regarding changes to flow management, saying "Based on subsequent monitoring and studies guided by the Trinity Management Council, the schedule for releasing water on a daily basis, according to that year's hydrology, may be adjusted but the annual flow volumes established in [a referenced table] may not be changed" (USDI 2000, p12). Consequently, this effort focused on how to reschedule existing volumes as set forth in the 2000 ROD, and does not seek to change annual flow volumes.

7. It is well established that salmon evolved with and require variable flows (Groot and Margolis 1991). Disturbance of the river's bed increases short term food availability (Parker and Power 1997) by dislodging aquatic insects and initiates longer-term insect productivity (Merz et al. 2012). Trinity River flows are held static and artificially low below Lewiston Dam during winter when flows would naturally be most variable. Under

the current flow management regime, riverbed scour and inundation of natural and Restoration Program-constructed floodplain habitat do not occur until after April 15 when managed restoration releases start, by which time 47%-87% of juvenile chinook have already migrated downstream of the restoration reach of the Trinity River (Petros et al. 2017), dramatically reducing the potential value of restored physical and ecological processes for the fish they are designed to benefit.

8. Further, the current timing of dam releases for restoration purposes in late spring and early summer has been found to suppress juvenile salmon growth. Warmer water temperature results in faster salmon growth (Lusardi et al. 2019). This is critical because the size of chinook salmon smolts when they reach the ocean is directly correlated with their survival (Pearcy 1992; Beamish and Malnaken 2001). Recent work by the Restoration Program has shown that in all years, but particularly in wetter years, the initiation of restoration releases in mid-spring significantly decreases river temperatures and holds juvenile chinook salmon for a prolonged period below the optimal temperature range for their growth (Abel et al 2022). This is validated by long term monitoring of out-migrating juvenile chinook in the Trinity River. There has been a significant increase in the number of juvenile fish produced since restoration actions were initiated, but by late spring, the fish trapped are consistently smaller since flows from the 2000 ROD began in 2005 (Pinnix 2022; Thomas Gast and Associates 2021); further, the artificially cold temperatures may be keeping salmon in the upper Trinity River longer, which exposes them to more hostile conditions in the lower Trinity and Klamath Rivers (Thomas Gast and Associates 2021). This is strong evidence that temperature suppression due to status quo restoration flow management is undermining otherwise successful restoration actions in the upper river and impeding recovery of its salmon populations.

9. A team consisting of biologists from the National Marine Fisheries Service, Yurok Tribe, California Department of Fish and Wildlife, and Bureau of Reclamation, with contributions by the Hoopa Valley Tribe, synthesized available scientific literature and recent studies specific to the Trinity River into a proposal to shift some of the TRD releases typically scheduled for April and May to earlier in the year. This analysis became the Trinity River Winter Flow Project Final Report (Abel et al. 2022), which proposed to shift a portion of 2000 ROD restoration flow volume earlier in the year through a synchronized dam release during a storm event, followed by elevated late winter and early spring baseflows, in order to:

    a. Better match natural flow variability during winter and spring runoff events and synchronize ecological processes between tributaries and the mainstem Trinity River
    b. Enhance natural cleaning and transport of river gravels, reduce buildup of sediment at tributary mouths, and increase effectiveness of peak flows by having a dam-controlled flow peak coincide with a major storm event

c. Reduce cold water releases in spring/summer that suppress juvenile salmon metabolism, reduce growth rates of their prey, and disrupts the breeding of other aquatic species including foothill yellow-legged frog
d. Allow the river to naturally warm earlier in the season to provide proper environmental cues that smolts rely on to time their outmigration to the ocean
e. Increase food availability for juvenile salmon through earlier production of macroinvertebrate prey species through floodplain inundation
f. Inundate natural and constructed floodplains and other productive off-channel rearing habitats for juvenile salmon to provide diversity of foraging habitats and temperatures and increase overall habitat capacity.

10. Specifically, the Winter Flow Report recommends that a peak flow of 6,500 cubic feet per second (cfs) be released between December 15 and February 15 to coincide with a storm event predicted to raise flows at the Trinity River above the North Fork Trinity River gage to 4,500 cfs or greater. Under current management, no water is released above the 300 cfs winter base flow between December 15 and February 15. Under the Winter Flow Project, additional fixed volumes will be released during the elevated baseflow period of February 15-April 15 based upon the California Department of Water Resources (DWR) February 1 and March 1 Bulletin 120 forecasts. Based on DWR's April 1 water year forecast, the TMC will subsequently recommend a spring restoration release schedule that best achieves ROD objectives for the remaining water for the specified water year determination. The proportion of water shifted to use earlier than the start of the April 15 spring restoration flow release is shown in Table 1 below.

11. Modeling of this proposal predicts a range of benefits to Trinity River salmon. By shifting some water from the late spring and summer to the winter period, there is a reduction (though not elimination) of restoration flow-induced temperature suppression, leading to increased chinook salmon growth; hindcasting of hypothetical winter flow proposal hydrographs onto the years 2006-2019 predicted a 5.7%-19.2% increase in the size of juvenile chinook salmon migrating to the ocean (Abel et al. 2022). A model of physical habitat capacity across a range of flows (Cooper-Hertel et al. 2022) anticipates that the earlier inundation of floodplain and off-channel habitats under the winter flow proposal results a 7.5%-8.1% increase in available juvenile salmon habitat relative to the baseline (Abel et al. 2022). By adding a single winter pulse flow release in the December-February period, there is an estimated 24% increase in the area of annual river bed disturbance, which has important ramifications for the river's ability to build and maintain physical salmon habitat, as well as increasing food availability for juvenile salmon by dislodging insects.

12. The Restoration Program's multiagency Interdisciplinary Team (a technical advisory body in which all Restoration Program partner agencies and tribes participate) unanimously recommended in 2022 that the Winter Flow Project be implemented. This prompted a December 7, 2022 vote of the Trinity Management Council (the Restoration

Program's governance board which recommends annual hydrographs to the Department of the Interior ("Interior") under the 2000 ROD), which approved by a 7-1 majority a motion to recommend that Interior implement the winter flow project. Votes in favor were cast by the National Marine Fisheries Service, U.S. Fish & Wildlife Service, U.S. Forest Service, Bureau of Reclamation, Yurok Tribe, California Natural Resources Agency, and Trinity County. The Hoopa Valley Tribe voted to oppose.

13. This proposal, and the expected geomorphological and ecological benefits that come with it, come with little risk to the environment and no cost in terms of water or restoration funding. The ruleset guiding how is the Winter Flow Project will be implemented prevents overspending the water budget for the water year, and ensures that enough water remains in the spring and summer period to achieve the water-year specific objectives from the Trinity River Flow Evaluation Report. The Winter Flow Project will not alter existing summer base-flows of 450 cubic feet per second.

14. The Restoration Program's own data shows that we are making significant strides in restoring the processes and habitat of the Trinity River, but also that our current flow management may be working against us. Shifting a portion of the 2000 ROD-allocated restoration volume earlier in the year is essential to Interior's ability to meet its legal mandate to restore the Trinity River fishery to pre-dam population levels. Implementing the recommended winter flow proposal this year is particularly important, as 2022 saw the largest spring chinook salmon run since 1978 (Wade Sinnen/CA Dept of Fish & Wildlife, pers. Comm. 2022); as well as the largest return of federally-listed Southern Oregon-Northern California Coast coho salmon in over a decade (CA Dept of Fish & Wildlife, unpublished data). We can only build on this year's runs if the progeny of those spawners have access to habitat at the right time of year, and if we do not suppress their growth by releasing water too late in the year. If we cannot make this change based on the best available science, there is no point in any of the other restoration actions that the Restoration Program has invested hundreds of millions of dollars in for the last 22 years.

15. The action window for the flow synchronization period began December 15, and a storm event that would trigger the geomorphic pulse flow could occur any day, particularly given the late December/early January meteorologic trends California is seeing. These trigger events only happen every two years on average, meaning if one is missed, it is unlikely to occur again this year. To implement the Winter Restoration Project without missing a key component, Interior would need to approve the action as soon as possible. A delay in approval amounts to an injunction in fact.

I declare, under penalty of perjury pursuant to 28 U.S.C. 1746, that the foregoing is to the best of my knowledge true and correct.

Executed this 30th day of December, 2022 in Trinity County of California

Dr. Michael Dixon

Water Year Type	ROD Water Volume (af)	ROD Volume Shifted to Winter Period under Proposed Action (af)	Percent ROD Volume Shifted from Summer to Winter under Proposed Action
Critically Dry	369,000	60,000	16%
Dry	453,000	80,000	18%
Normal	647,000	120,000	19%
Wet	701,000	180,000	26%
Extremely Wet	815,000	220,000	27%

Table 1. Water volumes shifted to winter/early spring period in acre-feet for each forecasted water year type, from Abel et al. 2022, p29.

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